A STUDY OF THE CORRELATION OF SOME PERSONALITY TRAITS OF HIGH SCHOOL STUDENTS

by

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Submitted to the Department of Education and the Faculty of the Graduate School of the University of Kansas, in partial fulfillment of the requirements for the degree of Master of Arts.

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Sept. 10 - 1925

ACKNOWLEDGMENTS

The writer appreciated the sympathetic guidance of Dean R. A. Schwegler. Very valuable aid was received from W. C. Olson, Bureau of Research, University of Minnesota. Much credit is due to the city schools of Lawrence for the opportunity to carry on this study.

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CHAPTER I. INTRODUCTION

This is a study of the traits of age, intelligence, and emotional balance in their relation to the conduct trends of behavior, leadership, discipline, and scholarship of some students in the high school at Lawrence, Kansas. It was the object of the investigation to study the relationship as a problem of social adjustment and of school success.

Conduct trends in this study were considered as indicators of social adequacy. "Spontaneous behavior" was habitual reaction of the individual to environment. "Disciplinary trends" were conceived of as observed instances of overt conflict with the conventional standards of the school. "Leadership qualities" were a method of studying the drives of the individual and the success of these life-drives in social contact. "School marks" were considered as indicators of scholastic success.

Age, intelligence, and emotional balance are traits which maybe measured at the beginning of the school year and may be used for the diagnosis of the educational possibilities of the individual. "Age" was measured in

terms of months. "Intelligence" was measured for this investigation by the Terman Group Test. "Emotional balance" was measured by reaction to questions which in some degree involved the emotional factor.

CHAPTER II. LITERATURE AND OTHER STUDIES

The measurement of emotional responses was first undertaken by Woodworth in 1918.[1] Emotional fitness for warfare was the object of this study. It was carried out on men in the army. A personal data sheet was devised to indicate emotional tendencies. Over two hundred questions were listed that could be answered by underscoring yes or no. Answers were then interpreted as favorable or unfavorable. Unfavorable responses were considered as symptoms of emotional instability.

Johnson revised the Woodworth personal data sheet for use with school children.[2] Sixty questions were chosen for a scale given to fifth grade children in a New York public school. The normal response was found to be 20 and a score of 30, or over, indicated emotional instability. Emotional instability tended to increase with age.

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1. Mathews, Ellen. "A Study of Emotional Stability in Children." Journal of Delinquency. Vol. VIII. No.1. January 1923.

2. Johnson, Buford. "Emotional Stability in Children." Ungraded. V. 1920. pp. 73-79.

Everett selected 78 questions from the Woodworth personal data sheet for a study of high school students. (1) These data disclosed that girls have higher medians than boys and greater variability.

Another revision of the Woodworth personal data sheet was used by Mathews in an extensive study of emotional stability in school children. (2) Children from nine to nineteen years and from the fourth to the twelfth grade were tested in this investigation. In addition there were a number of problem cases studied. It was found that boys, as a group, give fewer unfavorable responses than girls. Younger boys tend to give more unfavorable responses than older boys, while the opposite tendency existed among girls. Children selected because of nervous and temperamental difficulties responded, as a group, with more unfavorable answers than the unselected. It was concluded that such questions that had a large number of unfavorable responses were of little value in indicating emotional instability.

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1. Everett, Edith M. Tests of Emotional Stability as Applied to High School Students. Unpublished M.A. Thesis. Columbia University. 1919.

2. Mathews, Ellen. "A Study of Emotional Stability in Children". Journal of Delinquency. Vol.VIII, No.1. January 1923.

Mateer considered that emotional control is an important factor in determining psychopathy. (1) A psychopath is an individual whose intelligence functions wrongly. This functioning is determined by a number of factors among which is emotion. A psychopath lives at one or the other end of his emotional plane. Mateer considered the measurement of emotion as of doubtful possibility. However a functional analysis of the individual's behavior would indicate some personality traits that are of value in the prediction of behavior. Ten lines of psychological estimation were found to be of value in the determination of the qualitative aspect of intelligence that affects functioning. Age, intelligence, and school achievement as specific factors were not indicators of psychopathy. Observation of behavior was the most important method of detecting psychopathy. In a study of 355 delinquents 160 were found to be unmistakably abnormal by the observation of behavior in the laboratory examination. Deviation and variability were the most important indicators of delinquency. In whatever mental level, school class, or age it was the

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1. Mateer, F. The Unstable Child. Chapters IX, X. Appleton. 1924.

way the individual reacted that determined psychopathy rather than mental level, school class, or age itself. It was a functional trouble rather than a structural one.

In the measurement of emotional reaction both the introspective rating and the galvanometric deflection were investigated by Wechsler. (1) The coefficient of correlation of the introspective rating with galvanometric deflection was found to be .59 and .69. This degree of correlation would indicate that the introspective method of measuring emotional response has some value.

In a study of fundamental character traits by Travis reactions to stimuli in the form of concrete statements were found to have diagnostic value. (2) In this investigation two forms of tests were used: one a multiple choice test and the other a test of likes and dislikes. Fifty psychological and psychoanalytic terms were chosen as character traits to represent a number of mental sets and personal attitudes. Two statements were chosen for

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1. Wechsler, D. Measurement of Emotional Response: Researches in the Psychogalvanic Reflex. New York Archives of Psychology. Reviewed in Journal of Educational Psychology. Vol.XVI. No.5. May 1925. p.353.

2. Travis, R. C. "The Measurement of Fundamental Character Traits by a New Diagnostic Test." Journal of Abnormal Psychology and Social Psychology. Vol.XIX. No.4. January-March, 1925.

each trait. College students were tested by this method. The coefficient of reliability was found to be .90/ The Morgan Intelligence Test was used to measure intelligence. The correlation of character traits with intelligence was found to be positive .114 P.E. ±.09. The two forms of tests correlated gave a coefficient of + .75. Teachers' estimates were considered unreliable for the intercorrelation amounted to only+.38 P.E. ±.07. The ratings of intimate associates did not prove to have value, for the intercorrelations of these data gave an average correlation of only+.24 P.E.±.14. The investigation shows that the study of fundamental character traits by these tests was of value in the detection of mental conflicts and of the underlying mechanism of personality. Intelligence had no relation to character traits.

An investigation of behavior problems of a disciplinary nature was made by Olson at the University of Minnesota. (1) Olson made up a behavior record sheet of such units of behavior as are most indicative in school life of socially undesirable trends. In a preliminary study of 801 cases 5% were found to have scores of 40 or

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1. From a communication received from Mr. Olson. The investigation is not completed.

above. Certain individuals with scores ranging from 16 to 110 were given intensive study and conditions discovered in all, which were sufficiently serious to justify remedial measures.

The relation of conduct difficulties to mental status and home environment was investigated in a group of public school boys in New York. (1) Twenty undesirable conduct traits were listed for a measure of disciplinary tendencies. These data disclosed a connection between mental status and conduct difficulty; though not as large as commonly supposed. There was some connection between environment and conduct troubles, though this was not as large as supposed. There was no correlation found to exist between health and conduct difficulties.

According to Burnham discipline has a place in social adjustment.(2) Conduct disorder is an indication of a personal defect. Conduct not in keeping with justifiable discipline is sufficient ground to consider the individual socially inadequate.

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1. Johnson, Elinor Hope. "Relation of Conduct Difficulties of a Group of Public School Boys to Their Mental Status and Home Environment." Journal of Delinquency. Vol.VI. No. 6. November, 1921. pp.559.

2. Burnham, W. H. The Normal Mind. Appleton. 1924. Chapter 20.

The factor of leadership in high school students was the subject of a study made by Lynn at the University of Kansas in 1924.(1) Positions of leadership in school activities were evaluated according to the judgment of school administrators. The correlation of leadership with school marks in this study was+.20 P.E.±.001. Though not a high correlation, such as was found to exist indicated that the factors of leadership and scholarship have some elements in common.

One of the central traits of leadership is drive.(2) It is a mark of activity of the personality. Intelligence is a factor in leadership yet one does not necessarily accompany the other. The quality of leadership depends on certain symptoms of effectiveness. (3) It does not depend on the physical, mental, or other structural factors.

An investigation of behavior traits of a negative sort was made by Porteus at the Training School,

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1. Lynn, F. H. A Study of the Source of High School Leaders of Harvey County, Kansas. M.S. Thesis at the University of Kansas. 1924.

2. Allport, F. H. Social Psychology. Houghton Mifflin Company. 1924. Chapter 15.

3. Edman, I. Human Traits. Houghton Mifflin Company. 1920. Chapter 6.

Vineland, N. J.[1] All the possible traits of delinquents were gathered and reduced to those which would explain delinquency. These were then used in the construction of a social rating scale that was an index of social inefficiency. Seven traits were chosen and weighted. The individuals were rated by members of the staff. The correlation of social ratings with social estimates gave a coefficient of .89 for girls and .88 for boys. The rating and estimates made by different judges did not materially change the correlation. Social rating correlated with the Stanford Revision of the Binet test gave a coefficient of .32.

A review of admissions to 61 institutions in 21 states from 1917-22 included 68,983 individuals.[2] An analysis of these cases revealed significant explanations as to reasons for their being assigned to these institutions. For disorders associated with structural change in the brain or conditions which interfere with nutrition 37.46 % were assigned. Disorders associated

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1. Porteus, S. D. Studies in Mental Deviations. Publication of the Training School at Vineland, N.J. Department of Research. No. 24. October, 1922. p. 141.

2. Treadway, W. L. "The Place of Mental Hygiene in the Schools." American Journal of Public Health. Vol. XIII. No. 11. November, 1923. pp.928-937.

with faulty mental adjustments explained the coming of 47.69 %. Abnormal personal make-up was the explanation of 7.04 %. An unclassified list made up 7.79 %. The larger group were assigned because of disorders associated with faulty mental adjustment. In an investigation of these cases a number of unfortunate character traits were observed which might explain the condition of the patients. Treadway reduced these unfortunate traits to eight. These traits were then used in the study of 30,000 school children with respect to their mental equipment. Children deviating from the average were referred for study. These children included all school ages, every social level, and every class in school. The unfortunate traits observed in the neurotic and mental invalids were found to be present in these school children. Such traits interfered with the efficiency and well being of the child.

The studies thus far made in the field of personality are numerous, and they have brought to light many interesting, but not wholly conclusive facts. The technique of the studies reviewed may be seen to be quite as varied as are the conclusions.

CHAPTER III. THE SPECIFIC FIELD OF STUDY DEFINED.

It was purposed in this study to show:

1. What were the facts of emotional stability in these high school students.
2. What were the relationships of age, mental ability and emotional stability with leadership, behavior, discipline, and school achievement.
3. How age, emotional stability, leadership, discipline, and behavior entered into the relationship of mental ability with school marks.
4. How any combination of any two of the three factors of age, emotional stability, and mental ability predict leadership, behavior, and school marks.

CHAPTER IV. THE METHOD OF PROCEDURE AND FINDINGS

A. DISCUSSION OF SOURCE OF DATA

This study is based on data secured from 546 white students in the high school at Lawrence, Kansas. This school included the 10th, 11th, and 12th grades. The group here considered is an unselected group except as membership in a high school population may itself involve a certain selective process.

The boys were found to be slightly older than the girls according to the data in Table I. Boys also had a greater variability in age than girls.

TABLE I. DISTRIBUTION ACCORDING TO AGE

Years	Girls	Boys	Total
Under 15	25	15	40
15	60	57	117
16	70	67	137
17	56	69	125
18	28	26	54
Over 18	20	31	51
No age record	8	14	22
Totals	267	279	546
Mean	16.2 years	16.4 years	16.3 years
S. D.	16.8 months	17.5 months	17.1 months

There were more girls than boys in the 12th grade. The opposite was true for the 10th grade. Table II indicates the trend of boys to drop out of school before the 11th and 12th grades.

TABLE II. DISTRIBUTION OF STUDENTS ACCORDING TO CLASSIFICATION IN LAWRENCE HIGH SCHOOL.

Classification	Boys	Girls	Total
Seniors-12th Grade	68	81	149
Juniors-11th Grade	65	74	139
Sophomores-10th Grade	146	112	258
Total	279	267	546

B. THE EMOTION SCALE

A revision of the Johnson scale was used in the measurement of emotional stability. Since this scale was devised for children 12 years of age some change was necessary to make it applicable to high school students. For this investigation sixty-six questions were included in a "Student's Scale" as indicators of emotional response. The name, "Student's Scale", was used to avoid any

inhibitions on the part of the student in marking the answers. As in the other personal data sheets the questions were so stated that the answers might be marked by underscoring either "Yes" or "No". A copy of the scale used in this study may be found on page II of the appendix.

All students of the Lawrence High School were given the emotional stability test March 2, 1925 during the second hour class period, which came at 9:30 o'clock in the morning. Teachers were instructed to make the announcement, "Underscore 'yes' or 'no' as you find the question answered in your life experience." No explanation was made as to the nature of the test. This was to insure a normal condition in which to mark the answers. The affirmative answer to all questions, except question 2, was considered as an unfavorable response. Question 2 was unfavorable when the negative answer was underscored. The total number of unfavorable responses made the score on the test of emotional stability.

Scores for emotional stability were thus secured for 546 students. This number included 279 boys and 267 girls. These students constituted the group under

investigation. Since deviations and variabilities are the bases of measuring the significance of data, the scale should give scores of deviation and variability. A question marked by a large number of students would have little value in determining variability and deviation. Questions marked unfavorable by a few would indicate unusual emotional trends. The percentage of students marking a question unfavorably might be considered as a test of the validity of that particular question.

TABLE III. DISTRIBUTION OF UNFAVORABLE RE - SPONSES FOR EACH QUESTION ON THE EMOTION SCALE FOR ALL STUDENTS.

Question Number	Boys	Girls	Total	Percentile
1	36	25	61	20
2	15	2	17	10
3	32	9	41	10
4	81	57	138	30
5	82	87	169	40
6	92	161	253	50
7	130	194	324	60
8	15	39	54	10
9	20	43	63	20
10	23	54	77	20
11	25	90	115	30
12	41	51	92	20
13	155	184	339	70
14	123	176	299	60
15	19	62	81	20
16	29	121	150	30
17	40	55	95	20
18	114	117	231	50
19	34	32	66	20
20	44	45	89	20
21	103	134	237	50
22	48	69	117	30
23	54	95	149	30
24	15	70	85	20
25	24	16	40	10
26	188	190	378	70
27	44	31	75	20
28	29	14	43	10
29	22	25	47	10
30	138	138	276	60
31	198	174	372	70
32	129	165	294	60
33	65	94	159	30
34	94	144	238	50
35	37	151	188	40

36	59	90	149	30
37	142	130	272	50
38	202	52	254	50
39	39	19	58	20
40	42	10	52	10
41	139	161	300	60
42	158	161	319	60
43	79	60	169	40
44	85	160	245	50
45	23	18	41	10
46	34	27	61	20
47	67	102	169	40
48	47	33	80	20
49	204	186	390	80
50	116	122	238	50
51	181	174	355	70
52	87	86	173	40
53	73	84	157	30
54	76	42	118	30
55	163	131	294	60
56	106	104	210	40
57	97	93	190	40
58	87	86	173	40
59	41	128	169	40
60	32	40	72	20
61	23	27	50	10
62	110	138	248	50
63	110	95	205	40
64	118	148	266	50
65	66	85	151	30
66	26	11	37	10

A distribution of the unfavorable responses for each question of the emotion scale is found in Table III. The number of unfavorable responses marked by the boys is found in the second column. The unfavorable responses marked by the girls for each question is found in the third column. The unfavorable responses marked by all the students for each question is found in the fourth column. A percentile analysis of the unfavorable responses was made and given in the fifth column. In the fifth column is a distribution of the number of unfavorable responses for each question according to the 10 percentile in which the number of unfavorable responses would assign it. This study was made to find what the number of unfavorable responses would reveal as to the value of each question as an indicator of emotional stability. The basis of analysis is found in Table IV.

TABLE IV. BASIS OF PERCENTILE ANALYSIS OF UNFAVORABLE RESPONSES ON EMOTION SCALE QUESTIONS.

Unfavorable Responses from	to	Percentile
1	54	10
55	109	20
110	163	30
164	218	40
219	273	50
274	327	60
328	382	70
383	436	80
437	481	90
482	546	100

The validity of these questions in the emotion scale depends on how such questions are indicators of deviation and variability. An unusual unfavorable response was thought of as an indicator of deviation and variability. A validation study of the questions was made by their percentile distribution and the data given in Table IV. The fact that 10 questions were in the 10 percentile, 14 questions in the 20 percentile, 10 questions in the 30 percentile, 10 questions in the 40 percentile, and 11 questions in the 50 percentile is significant. This would indicate that these questions are fair measures of deviation and variability in indicating emo-

tional stability.

TABLE V. PERCENTILE DISTRIBUTION OF QUES - TIONS ON THE EMOTION SCALE ACCORDING TO THE UNFAVORABLE RESPONSES MARKED BY STUDENTS.

Percentile	Question Numbers	Number of questions in this percentile
10	2,3,8,25,28,29,40,61,66	10
20	1,9,10,12,15,17,19,20,24, 27,39,46,48,60.	14
30	4,11,16,22,23,33,36,53,54,65	10
40	5,35,43,47,52,56,57,58,59,63	10
50	6,18,21,30,34,37,38,44,50,64 62	11
60	7,14,32,41,42,55	6
70	13,26,31,51	4
80	49	1
		66

The scores on the emotion scale ranged from 2 to 43. The mean score for the entire group was 20.4. The standard deviation for the entire group was 7.6. A comparative analysis may be made of the scores of boys and girls by a study of Table VI.

TABLE VI. THE MEAN SCORES AND STANDARD DE - VIATIONS OF EMOTION SCORES BY GIRLS AND BOYS ACCORDING TO YEARS.

	Under 15	15	16	17	18	Over 18	Totals
			MEAN SCORES				
Boys	24.7	18.1	18.4	18.8	19.3	19.5	18.8
Girls	18.2	21.3	21.6	24.4	23.6	21.3	21.9
			STANDARD DEVIATIONS				
Boys	8.2	6.2	7.1	7.9	7.2	7.1	7.4
Girls	6.5	6.4	6.1	5.3	7.8	5.6	7.8

It is significant to note that girls have a somewhat higher mean score than boys. The variability of girls is practically the same though slightly higher. The mean score for girls increases consistently with age. The younger boys have the highest mean score among the boys. After fifteen years the boys' mean scores increase consistently with age. These tendencies seem to agree with what has been found in previous studies. Johnson found that the emotion score tended to increase with age. (1) These data agreed with the results found by Everett.(2) Everett found that

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1. Page 3 of this study.
2. Page 4 of this study

girls had higher medians than boys and greater variability. This was true in the Mathews study with the additional agreement that younger boys gave more unfavorable responses than older boys.

TABLE VII. DISTRIBUTION OF UNFAVORABLE RESPONSES ON EMOTION SCALE FOR 546 HIGH SCHOOL STUDENTS.

Emotion Score	Frequency
43	1
42	1
41	2
39	4
38	5
37	3
36	3
35	7
34	1
33	8
32	12
31	10
30	8
29	24
28	11
27	19
26	18
25	22
24	18
23	32
22	28
21	28
20	26
19	37
18	29
17	20
16	20
15	25
14	19
13	21
12	15
11	15
10	15
9	12
8	8
7	4
6	6
5	3
4	3
3	
2	3
Total	546
Mean	20.4
S. D.	7.6

TABLE VIII. DISTRIBUTION OF UNFAVORABLE RESPONSES FOR BOYS ACCORDING TO AGE.

Emotion Score	Under 15	15	16	17	18	Over 18	No age record	Total
43	1							1
42								
41	1			1				2
40								
39								
38							1	1
37				1				1
36					1			1
35	1	1		3				5
34								
33		1						1
32			3	2				5
31					1	1		2
30			1			1		2
29	1	2	3	1	2	2		11
28		1			1			2
27			2	1	1		2	6
26		2	1	2		1		6
25	2	1	5	3		2		13
24	1	1	1	4	1	2		10
23			6	2	1	4	3	16
22	1	2	2	1	3	3	2	14
21	2	2	1	3	2	2		12
20	1	3	4	4		2	2	16
19		6	4	5	2	1	1	19
18	1	3	4	6	2			16
17	1	4	5	1	1			12
16		3	5	1	1	1		11
15	1	3	1	1	4	2	2	14
14	1	5	3	8				17
13		7	1	4		1		13
12		3	1	3				7
11		3	2	2	1	1		9
10		1	1	4		2		8
9		1	4	2	1	1		9
8		1	2	2				5
7			1			1	1	3
6			2	1		1		4
5			1					1
4		1	1					2
3								
2				1	1			2
Totals	15	57	67	69	26	31		279
Means	24.7	18.1	18.4	18.8	19.3	19.5		19.1
	8.2	6.2	7.1	7.9	7.2	7.1		7.4

TABLE IX. DISTRIBUTION OF UNFAVORABLE RESPONSES FOR GIRLS ACCORDING TO AGE.

Emotion Score	Under 15	15	16	17	18	Over 18	No age record	Total
43								
42				1				1
41								
40								
39		1		1	2			4
38		1	1	1	1			4
37			1				1	2
36		1		1				2
35	1		1					2
34				1				1
33		2	1	4				7
32		1	1	2	1	1	1	7
31		1	2	2	2	1		8
30		2	2	1	1			6
29		3	4	4	2			13
28	2	1	2	1	1	2		9
27	1	3	4	4	1			13
26	1	1	4	4	1	1		12
25	1	2	3	3				9
24		2	2	1	3			8
23	1	4	5	5	1	4		16
22		3	3	2	2	4		14
21	1	6	4	3	1	1		16
20	1	2	2	2	1	2		10
19	5	4	3	3		2	1	18
18	2	1	3	2	2	2	1	13
17		2	3	1	1	1		8
16	1	3		3	1	1		9
15	1	4	2	1	1		2	11
14			1				1	2
13	2		3	1	2			8
12	1	2	4				1	8
11	2	1	2	1		1		6
10	1	1	3			1		7
9		2			1			3
8	1		2					3
7		1						1
6		2						2
5		1		1				2
4			1					1
3								
2			1					1
Total	25	60	70	56	28	20		267
Mean	18.2	21.3	21.6	24.4	23.6	21.3		22
S. D.	6.5	6.4	6.1	5.3	7.8	5.6		7.8

Some study was made of those students with high scores on the emotion scale. What might be considered as the 95 percentile was the group given attention. These were the ones who, by this test, were extreme deviates and it was thought that some trends might be present in these data. The writer was not acquainted with all the individuals, in question, but a case study was made of all with as much additional information as the writer was able to give.

1. Boy, emotion score 43, average grades G, age 171 months, Terman score.

2. Girl, emotion score 42, average grades G, age 206 months, Terman score 140. Industrious, adaptable, a little inclined to be abrupt and brusque.

3. Boy, emotion score 41, average grades E, age 159 months, Terman score 185. A brilliant student, studious, genuine, sincere, sociable.

4. Boy, emotion score 41, average grade M, age 207 months, Terman score 188. Congenial, sociable, has some difficulty in social adjustment, not overly popular.

5. Girl, emotion score 39, average grade P,

age 217 months, Terman score 104. Has little emotional control, very poor student, superficial, very sensitive to criticism or attention.

6. Girl, emotion score 39, average grade G, age 184 months, Terman score 120. Quiet, reserved, attracts little attention, seems happy though seldoms enters into voluntary discussion in class or mixes in student groups.

7. Girl, emotion score 39, average grade M, age 221 months, Terman score 93.

8. Girl, emotion score 39, average grade G, age 207 months, Terman score 171. Striking, slightly sensational in conduct traits, cliquish.

9. Girl, emotion score 38, average grade G, age 222 months, Terman score 151. Sociable, adaptable, kindly, refined.

10. Girl, emotion score 38, average grade M, age 214 months, Terman score 149. Quiet, reserved, seldom participates in school life.

11. Girl, emotion score 38, average grade M, age 196 months, Terman score 78.

12. Girl, emotion score 38, average grade P, age 191 months, Terman score 154. Socially inclined, refined.

13. Boy, emotion score 38, no other records.

14. Boy, emotion score 37, average grade G, age 206 months, no Terman score. Sincere, hard worker, persistent, independent, sociable, well liked.

15. Girl, emotion score 37, average grade M, age 200 months, Terman score 105. Flighty, quick spoken.

16. Girl, emotion score 37, average grade G, no other records. Reserved, reticent, excellent student.

17. Girl, emotion score 36, average grade M, age 188 months, Terman score 164. High strung, talkative, snobbish, troublesome student in class.

18. Girl, emotion score 36, average grade P, age 207 months, Terman score 62.

19. Boy, emotion score 35, average grade M, age 209 months, Terman score 152.

20. Girl, emotion score 35, average grade M, age 171 months, Terman score 154.

21. Boy, emotion score 35, average grade M, age 206, Terman score no record. Quiet, reserved.

22. Boy, emotion score 35, average grade M, age 214 months, Terman score 131. Artistic inclinations, hesitant in decisions, never mixed in student groups.

23. Boy, emotion score 36, average grade M, age 222 months, Terman score 171.

24. Boy, emotion score 36, average grade P, age 159 months, Terman score 97.

25. Boy, emotion score 35, average grade P, age 188 months, Terman score 100.

26. Girl, emotion score 35, average grade M, age 201 months, no Terman score.

These case studies did not disclose any significant trends. There did not appear any tendency of a high emotion score to be accompanied by either a high or low average school grade. This same situation was found to exist for mental ability: that is, no trend of high emotion scores being accompanied by either a high or low mental ability score. A review of the additional data given by the writer did not indicate any behavior or discipline trends for these students with high emotion scores.

C. THE BEHAVIOR SCALE

From the literature bearing on unstable and psychopathic individuals undesirable behavior traits were gathered for the construction of a measure of spontaneous behavior which might be indicative of unstable trends. Seventy-three traits were listed for a measuring device. This was called a "Teacher's Scale". A copy of it will be found on page III of the appendix. Every one of these traits was of a negative nature: that is, it was thought of as an undesirable trait. The scoring of a student was done by checking the traits present in that particular individual. The behavior score was the total number of traits checked. This method followed quite generally the plan of Porteus and his index of social inefficiency. (1)

For behavior scores the writer himself checked as many students as he could on the basis of a definite personal contact. As assistant principal and as class toom teacher the writer was acquainted with a large number of students. No selection was made. The scoring

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1. Porteus, S. D. Studies in Mental Deviations. p. 133.

was done by checking all the students considered in this study for whom the writer had a distinct impression. This was assumed to be a teacher's estimate of the undesirable behavior traits in a student. It was, of course, realized that a composite of two or three more ratings would have been preferable, but an extensive trial showed that such multiple ratings in this case added nothing to the reliability of the ratings. The student's behavior score was the total number of traits checked on this teacher's scale.

There were 234 students for whom behavior scores could be determined. This number included 108 girls and 126 boys. Boys had a much higher mean score than girls.

TABLE X. MEAN SCORE AND DEVIATION FOR BOYS AND GIRLS ON THE BEHAVIOR SCALE.

	Mean Score	Standard Deviation
Girls	5.7	6.4
Boys	7.3	7.2
Totals	6.7	7.0

From these data it seemed that boys tend to display more undesirable behavior traits than girls. "Pearson in his measurement of traits, not by objective tests but by opinions of people who know the individual, finds that boys are more athletic, noisy, self-assertive self-conscious; less popular, duller in conscience, quicker-tempered, less sullen, a little duller intellectually" than girls.(1)

1. Norsworthy, N. and Whitley, M. The Psychology of Childhood. Macmillan. 1922. p. 12.

TABLE 11. FREQUENCY DISTRIBUTION OF BEHAVIOR SCORES FOR ALL STUDENTS.

Behavior Score	Girls	Boys	Totals
33		1	1
32			
31			
30	1		1
29		1	1
28		1	1
27		1	1
26			
25			
24	1	2	3
23			
22	1	1	2
21	1		1
20	2	3	5
19			
18	1	3	4
17	1	2	3
16	2	2	4
15	2	3	5
14	3	6	9
13	2	2	4
12	1	4	5
11	4	1	5
10	2	3	5
9	2	5	7
8	2	5	7
7	8	5	13
6	6	7	13
5	4	8	12
4	7	12	19
3	13	5	18
2	3	4	7
1	1	4	5
0	38	35	73
Totals	108	126	234
Mean	5.7	7.3	6.7
S. D.	6.4	7.2	7.0

D. THE LEADERSHIP SCALE

The measurement of leadership was carried out according to the results of the investigation made by Lynn [1] in his study of high school leaders in a county in Kansas. A student activity form was first devised which listed all the student activities in the high school at Lawrence, Kansas. A copy of this form may be found on pages IV and V of the appendix. During April, 1925, this form was distributed throughout the school for a source of data to measure leadership. In the study by Lynn positions of leadership in school activities had been evaluated by a composite judgment of the school administrators in Kansas. The leadership score was determined by following the scale of values for each leadership position held by the individual student.

Leadership scores were secured for 214 students. There were 128 girls and 86 boys in this number. There was found to exist only a slight difference be - tween the mean leadership scores of boys and girls.

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1. Lynn, F. H. A Study of the Source of High School Leaders of Harvey County, Kansas. M.S. Thesis at the University of Kansas. 1924.

Though there were more girls than boys in positions of leadership yet the average score was practically the same. For these students these data constituted a measure of social adequacy and personal adjustment.

TABLE XII. FREQUENCY DISTRIBUTION FOR LEADERSHIP SCORES FOR ALL STUDENTS.

Leadership Score	Girls	Boys
45	1	
44		
43		
42		
41		
40	1	
39		
38		
37		
36		
35		
34		
33	1	
32		
31		
30		2
29		1
28		
27	1	
26	3	
25	1	1
24		
23		
22		1
21	4	1
20	1	
19	4	1
18		2
17	1	
16	3	1
15	3	2
14	1	4
13	7	3
12	5	5
11		1
10	4	2
9	7	5
8	11	7
7	2	3
6	5	4
5	21	20
4	23	12
3		1
2	2	5
1	16	2
Totals	128	86
Mean	8.9	8.6

E. THE DISCIPLINE SCALE

Discipline in this study was defined as undesirable conduct. The behavior problem sheet devised by Olson at the Bureau of Education Research, University of Minnesota, was used in the measurement of disciplinary tendencies. (1) This scale afforded the opportunity to score the individual in accordance with desirable adjustment to school regulations. Thirteen items were included in a disciplinary chart which would be adaptable for use with high school students. The writer scored such students for whom there was a definite mental impression. As an assistant in the high school office the writer had an opportunity to be directly acquainted with conduct problems. The values assigned in the scoring sheet were Olson's combined weighting, on the basis of the seriousness of the problem as an item in unsocial behavior and of the frequency of the manifestation of the problem. A copy of the disciplinary chart and the scoring sheet will be found in the appendix on pages VI and VII.

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1. The material used in this part of the study is based on a communication received from Mr. Olson as the study has not as yet been published.

Scores for disciplinary tendencies were secured for 209 students. This number represented 83 girls and 126 boys. Boys had a much higher mean score than girls. This same tendency has been noted in the behavior scores. Though the items and values are of a much different nature from those on the behavior scale yet there is marked similiarity in the results obtained. Adler maintained that behavioristic tendencies were of value in the solution of social maladjustment. (1) From this anti-social conduct would seem to follow behavior traits of the undesirable kind. In a study of delinquency Adler gave more importance to behavioristic traits than to mental processes. Healy, however, insisted on the importance of mental antecedents.(2) Porteus was of the opinion that the observation of behavior irregularity was of more value than mental data in predicting future social adjustment.(3)

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1. Adler, H. M. "A Psychiatric Contribution to the Study of Delinquency", Journal of Criminal Law, Vol.VIII. No. 66. May, 1917.

2. Healy, W. The Individual Delinquent. Boston. 1915. pp. 28 and 32.

3. Porteus, S. D. Studies in Mental Deviations. p. 144.

TABLE XIII. FREQUENCY DISTRIBUTION OF DISCIPLINE SCORES FOR ALL STUDENTS.

DISCIPLINE INTERVAL	GIRLS	BOYS
96-100		
91-95		1
86-90		1
81-85		1
76-80		2
71-75		
66-70	2	1
61-65	1	1
56-60		2
51-55		
46-50		2
41-45	1	2
36-40	1	1
31-35	1	5
26-30	3	2
21-25	2	4
16-20	5	5
11-15	2	4
6-10	3	4
1-5	2	8
0	60	80
Totals	83	126
Mean	9.08	13.2

F. MEASUREMENT OF SCHOLARSHIP

School marks were used as a measure of scholarship. Letters were in use in the high school at Lawrence, Kansas, for grades given as a measure of scholastic achievment. School marks for this investigation were such as were given at the close of the first semester of the school year 1924-25. These grades were taken from the office records at the close of the semester in January, 1925. The following letters were in use with their meanings: E - excellent, G - good, M - medium, P - poor, F - failure. An average of all grades for each student was used in this study when the subject of scholarship was under consideration. Numerical values were assigned to each letter as follows: E - 5, G - 4, M - 3, P - 2, F - 1. The average grade was determined by adding numerical values for each grade, dividing by the number of grades, and the grade then determined by reference to the following intervals of value:

Above 5	E
4-4.9	G
3-3.9	M
2-2.9	P
1-1.9	F

It may be observed that over 78 % of the girls made an average grade of M or better while only 58.7 % of the boys made M or over. The girls tended to have markedly better grades than the boys. The percentage distribution for the entire group shows a symmetrical tendency. The E and F grades have about the same percentage as also the G and P grades.

School grades have been the center of criticism as measures of scholarship. This investigation in no way assumes to be a defense or arraignment of this method of measurement. Such measures, however, were the accepted mode in use so were used in this study.

It was one of the objects in this study to study some of those factors which might influence grades given as measures of scholarship. The lack of a high correlation between school marks and mental ability has been the subject of numerous investigations. Some light was sought on this situation as a specific objective in this study.

TABLE XIV. DISTRIBUTION OF AVERAGE GRADES OF 536 HIGH SCHOOL STUDENTS FOR THE FIRST SEMESTER OF THE SCHOOL YEAR 1924-25 AT LAWRENCE, KANSAS.

A. NUMBER OF BOYS AND GIRLS RECEIVING EACH AVERAGE GRADE.

Avg.Grade	Boys	Girls	Totals
E	19	15	34
G	32	92	124
M	107	104	211
P	86	49	135
F	25	7	32
	269	267	536

B. PERCENTAGE OF EACH AVERAGE GRADE FOR BOYS AND GIRLS.

Avg.Grade	Boys	Girls	Totals
E	7 %	5.6%	6.3%
G	12 %	34.4%	23.1%
M	39.7%	38.9%	39.3%
P	31.9%	18.3%	25.1%
F	9.2%	2.6%	6. %
	99.8%	99.8%	99.8%

G. THE MEASUREMENT OF MENTAL ABILITY

The scores on the Terman Group Test of Mental Ability were used as measures of mental ability in this study. The mental test scores in this study were the results of tests given in February, May, and October, 1924. As many test scores as possible were secured from the office records for use in this investigation. The tests were given and scored under the direction of the superintendent's secretary of supervision, who was employed for this particular purpose.

Mental test scores for 449 high school students were secured for use in this study. This number included scores for 230 boys and 219 girls. The mean score was slightly higher for the boys though the amount of difference is negligible. The standard deviation is also larger for the boys.

There is no attempt here to ignore the controversy as to just what mental tests measure. However these devices are the generally accepted methods of measurement at this time so the data for the investigation were considered as the best to be had at the time of the study.

TABLE XV. DISTRIBUTION OF TERMAN GROUP TEST SCORES FOR 449 HIGH SCHOOL STUDENTS.

Mental Test Score Interval	BOYS	GIRLS	TOTALS
190-199	3	2	5
180-189	9	6	15
170-179	15	10	25
160-169	13	17	30
150-159	15	13	28
140-149	25	21	46
130-139	16	21	37
120-129	27	25	52
110-119	21	22	43
100-109	21	22	43
90-99	21	16	37
80-89	11	12	23
70-79	14	14	28
60-69	9	6	15
50-59	4	7	11
40-49	2	3	5
30-39	1	2	3
20-29	3		3
Totals	230	219	449
Mean	121.2	120.5	121.1
S.D.	37.03	35.5	36.6

CHAPTER V. THE INTERPRETATION OF FINDINGS

A. INTER-RELATIONSHIPS

The question of the inter-relationships of personal factors and character traits was carried out by the method of correlation. The correlation of each of the following traits with others; age, mental ability, emotional stability, leadership, behavior, discipline, and school marks was found by the Pearson product-moment equation. (1) The probable error was computed by the equation method. (2) The regression coefficients were also derived for the additional light on the meaning of the inter-relationships. (3) It was the object of these studies to find what similiarity there existed in the deviation and variability of these factors and traits.

1. $r = \dfrac{\frac{\Sigma x'y'}{N} - c_x c_y}{\sigma_x \sigma_y}$

2. $P.E. = .67 \dfrac{1-r^2}{\sqrt{N}}$

3. $X = r \dfrac{\sigma_x}{\sigma_y} y, \quad y = r \dfrac{\sigma_y}{\sigma_x} X.$

(From Rugg, H. O. Statistical Methods Applied to Education. Houghton Mifflin and Co. 1917. Chapter 9.

TABLE XVI. CORRELATION OF TERMAN GROUP TEST SCORES WITH SCORES ON EMOTION SCALE FOR 449 WHITE HIGH SCHOOL STUDENTS.

TERMAN SCORES	EMOTION SCORES: 2 3	4 5	6 7	8 9	10 11	12 13	14 15	16 17	18 19	20 21	22 23	24 25	26 27	28 29	30 31	32 33	34 35	36 37	38 39	40 41	42 43	Totals
190 199				1			1	1			1			1								5
180 189				1	1			1	1		4	2	2	1						2		15
170 179				1	2		3	3	3	2	4	3		1		1		1	1			25
160 169		1			4	5	2	3	4	3	1			1	1	2	1	1	1			30
150 159			1		1	3	4	2	1	3	2	3	4				2		2			28
140 149				3	3	5	2	3	3	3	5	9	2	5	1				1		1	46
130 139				1	2	3	1	1	7	4	4	5	2	3	2	1	1					37
120 129					4	6	2	4	5	9	7	2	4	1	2	4			1		1	52
110 119	1	1			3	1	4	5	8	6	4	2	1	5	1	1						43
100 109			1	4	4	3	1	1	3	5	7	3	3	1	3	1	1	1	1			43
90 99		1		2	1	1		1	4	8	5	3	2	2	1	4	1		1			37
80 89						1	4	4	6	2			2	2		2						23
70 79	1	2	1	1		1	5	4	4	1	3		2	1	1				1			28
60 69			1		1	1	1	2	3			2	2	1				1				15
50 59				1			1			1	1	2	2	1		2						11
40 49		1		1							1		1		1							5
30 39					1					1	1											3
20 29							1	1			1											3
Totals	2	6	4	16	27	30	32	36	52	48	51	36	29	26	13	18	6	4	9	2	2	449

$r = -.02$
$\sigma_E = \pm .03$
$\sigma_y = 3.6$
$\sigma_x = 7.6$
$y = .04x$
$x = .009y$

The coefficient of correlation of mental ability with emotional stability was −.02±03. This correlation was for 449 scores on the emotion scale with similar scores on the Terman Group Test of Mental Ability. The correlation is too small to signify any relationship between emotion and mental ability. The fact that what did exist was negative would seem to indicate that as mental ability increased there might possibly be a tendency for emotional responses to decrease. The regression of mental ability on emotion was .04 and of emotion on mental ability was .009, both of no value.

These results agreed with the tendencies found in other studies. Mathews found for a selected group that correlation between the size of I.Q. and size of emotion score was −.201 for boys −.055 for girls. For another selected group Mathews found correlation coefficients of −.425 and −.592. (1) Since these computations were for selected groups there is little ground for comparison with the investigation under consideration. Travis concluded that there was no relation between intelligence and

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1. Mathews, Emotional Stability of Children, p. 37.

character traits:[1] the character traits considered resemble somewhat the emotion scale of this study.

TABLE XVII. CORRELATION OF SCHOOL MARKS AND EMOTION SCORES FOR 536 HIGH SCHOOL STUDENTS.

Emotion Scores	Average Marks					Totals
	1	2	3	4	5	
42 43				2		2
40 41			1		1	2
38 39		2	3	3		8
36 37		1	3	2		6
34 35		2	5		1	8
32 33	1	5	10	4		20
30 31	1	4	7	5	1	18
28 29	2	4	16	12	2	36
26 27	2	5	17	7	5	36
24 25	2	4	18	11	4	39
22 23	4	21	19	10	3	57
20 21	1	17	18	15	1	52
18 19	5	16	25	15	3	64
16 17	3	10	11	12	5	41
14 15	3	10	18	10	1	42
12 13	1	7	14	14		36
10 11	3	7	11	3	1	30
8 9	2	4	10	2	2	20
6 7	2	3	2	1	2	10
4 5	1	1	3	1		6
2 3	1	1		1		3
Totals	34	124	211	135	32	536

$r = -.02$
$P.E. = \pm .03$
$\sigma_y = 7.6$
$\sigma_x = .98$
$y = .15x$
$x = .002y$

1. Travis, R.C. The Measurement of Fundamental Character Traits.

There did not appear to be any relation of school marks to emotional stability. The coefficient of correlation of school marks with emotion scores for 536 high school students was $-.02 \pm .03$ This would indicate that expression of emotional tendencies on the emotion scale had little or no relation to grades received in school. The negative sign possibly had a slight significance in that as emotional response increased there was perhaps a tendency for grades to decrease: the amount is so small as to render this relationship inconclusive. The regression of school marks on emotion was .0026 and emotion on school marks also negative and .154 in amount.

In the study of emotional stability of high school students Everett found that there was no appreciable correlation between the size of emotion score and school marks. (1)

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1. Everett, Edith M. Tests of Emotional Stability Applied to High School Students. Master's Thesis, Columbia University. 1919.

TABLE XVIII. CORRELATION OF EMOTION SCORES WITH DISCIPLINE SCORES FOR 210 HIGH SCHOOL STUDENTS.

EMOTION SCORES	DISCIPLINE SCORES 1 6 11 16 21 26 31 36 41 46 51 56 61 66 71 76 81 86 91 96	Totals
	0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100	
42 43	1	1
40 41	2	2
38 39	3 1 1	5
36 37	2 1 1	4
34 35	3 1	4
32 33	6 1 1	8
30 31	4 1 1 1	7
28 29	14 1 1 1	17
26 27	14 2	16
24 25	7 1 2 1 2 1	14
22 23	15 1 2 2 1 3 1 1 1	27
20 21	15 3 1 2 2 1 2	26
18 19	14 2 1 1 1 1	20
16 17	9 1 1 1 1 1	14
14 15	11 1	12
12 13	8 1 1 1 1	11
10 11	6 1 1 1 1 1	10
8 9	5 1 1 1	8
6 7	1 1 1	3
4 5		
2 3	1	1
Totals;		
139	1 10 7 12 4 7 8 3 3 2 2 2 2 3 1 1 1 1 1	210

$r = +.13$
$\rho\varepsilon = \pm .044$
$\sigma_y = 7.6$
$\sigma_x = 4.4$
$y = .12x$
$x = .14y$

There was found to be a small degree of correlation between emotional response and disciplinary history. The correlation of emotion scores with scores on the discipline chart was +.13 ±.04. The positive sign and amount of correlation indicated that there may be some slight tendency for emotional response of these students and of the disciplinary trends to be similar. The regression of emotion on discipline was .116 and of discipline on emotion was .144. The curvilinear nature of the scatter in some measure discounts the value of the correlation and regression coefficients.(1) The large errors of measurement further lessens the possibility of interpretation of these data. However as the values stand there was indicated some slight relationship between emotion and discipline.

In conduct problem cases there was a marked influence of emotion on behavior traits when the individual was under observation in the laboratory.(2)

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1. Kelley, T. L. Statistical Method. Macmillan. 1923. pp. 151, 172.

2. Mateer, F. The Unstable Child. pp. 452 and 455.

The wrong functioning was attributed in some degree to emotional influences. "Invariably, however, the fundamental factor in behavior is not intellectual calibre or environmental conditions, but the peculiar personality, which is played upon by emotional appeals plus concomitant circumstances". (1)

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1. Bingham, Anne T. "Determinants of Sex Delinquency in Adolescent Girls, Journal of Criminal Law. Vol. 13. p. 560. February, 1923.

TABLE XIX. CORRELATION OF EMOTION SCORES WITH DISCIPLINE SCORES FOR 71 HIGH SCHOOL STUDENTS. NO ZERO DISCIPLINE SCORES INCLUDED.

EMOTION SCORES	DISCIPLINE SCORES 1 5	6 10	11 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	Totals
42 43			1																	1
40 41																				
38 39				1	1															2
36 37				1										1						2
34 35		1																		1
32 33						1		1												2
30 31				1		1							1							3
28 29					1	1				1										3
26 27							2													2
24 25		1	2	1		2								1						7
22 23			1	2	2	1	3	1	1										1	12
20 21		3	1	2					2				1		2					11
18 19		2	1	1			1								1					6
16 17		1		1						1	1						1			5
14 15				1																1
12 13			1	1		1														3
10 11	1						1				1							1		4
8 9		1						1											1	3
6 7							1									1				2
4 5																				
2 3		1																		1
Totals	1	10	7	12	4	7	8	3	3	2	2		2	2	3	1	1	1	2	71

$r = -.12$
$\sigma_\epsilon = \pm .07$
$y = .10x$

$x = .12y$
$\sigma_y = 4.1$
$\sigma_x = 4.7$

A study was made of the relationship of emotion and those discipline scores above zero. All students here considered were those who had some discipline history. Though there were only 71 cases there was thought to be some value in the data. The coefficient of correlation for this computation in Table XIX was found to be $-.12 \pm .07$. This is the same amount of correlation as when all students were considered save for the opposite sign. It would seem to indicate those with high emotion scores have low discipline scores. The small number of cases and the low correlation with such a high probable error suggest, however, the results were of little value.

This particular problem seems to have opportunities of worthwhile study. From a review of the data in this study it seems that by high emotion scores there is expended energies in a form which is not contradictory to the conventional type of conduct. This sublimation might be a productive study in itself. It is generally agreed by students of this field of human nature that by sublimation it is possible to release pent-up energies and drives in a way that is not anti-social.

TABLE XX. CORRELATION OF EMOTION SCORES WITH BEHAVIOR SCORES FOR 231 HIGH SCHOOL STUDENTS.

EMOTION SCORES		BEHAVIOR SCORES																		
		0	1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	Totals
			2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	
42	43			1																1
40	41	1					1													2
38	39	1			2	1							1							5
36	37	1				1				1							1			4
34	35	1					1					1								3
32	33	4	1	1		1		1	1											9
30	31	1	1	1		3														6
28	29	4		3	1		2	2	1	1	1									15
26	27	5	1	5	1	1	1	1			1									16
24	25	7	1	4	2	3			1		1						1			20
22	23	11	2	7	2	1		1		2	1	2								29
20	21	9	2	2	5	1	1	1	2	1		1		1		1				27
18	19	6	1	3	5	1	2	3	3				1							25
16	17	6	1			2			2	1	2									14
14	15	5		4	2	2										1				14
12	13	2	1	3		1	2		3											12
10	11	4	2	2			1			1				1					1	12
8	9	1			5	1				2		1								10
6	7	2	1					1					1							5
4	5	1																		1
2	3					1														1
Totals		72	14	36	25	20	11	10	13	9	6	5	3	2		2	2		1	231

$r = +.04$
$P.\varepsilon = \pm .04$
$\sigma_y = 7.6$

$\sigma_x = 3.7$
$y = .04x$
$\sigma_x = .03y$

There was no relation found between emotional stability and behavior traits. The correlation of emotion scores and behavior traits for 231 high school students was +.04±.04. The regression of emotion on behavior was .04 and of behavior on emotion .03. The large number of zero scores on the discipline scale tends to make the scatter curvilinear. The probability of error in measurement makes the interpretation of these data difficult and uncertain. (1).

In the determination of psychopathy the bearing of emotional tendencies on behavior has been credited with a large amount of influence.(2) The delinquent also has been studied with respect to behavior disturbances due somewhat to emotional instability. The data in this investigation would indicate the possibility of emotional instability and undesirable behavior traits having some common elements.

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1. Kelley. Statistical Method. pp. 151, 172.
2. Mateer. Unstable Child. Chapter X.

TABLE XXI. CORRELATION OF EMOTION SCORES WITH BEHAVIOR TRAITS FOR 159 HIGH SCHOOL STUDENTS. NO ZERO BEHAVIOR SCORES INCLUDED.

EMOTION SCORES	BEHAVIOR SCORES 1	3	5	7	9	11	13	15	17	19	21	23	25	27	29	31	33	Totals
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	
42 43		1																1
40 41					1													1
38 39			2	1							1							4
36 37				1				1							1			3
34 35					1					1								2
32 33	1	1		1		1	1											5
30 31	1	1		3														5
28 29		3	1		2	2	1	1	1									11
26 27	1	5	1	1	1	1			1									11
24 25	1	4	2	3			1		1						1			13
22 23	2	7	2	1		1		2	1	2								18
20 21	2	2	5	1	1	1	2	1		1		1		1				18
18 19	1	3	5	1	2	3	3				1							19
16 17	1			2			2	1	2									8
14 15		4	2	2										1				9
12 13	1	3		1	2		3											10
10 11	2	2			1			1				1					1	8
8 9			5	1				2		1								9
6 7	1					1					1							3
4 5																		
2 3				1														1
Totals	14	36	25	20	11	10	13	9	6	5	3	2		2	2		1	159

$r = -.04$
$\rho_{\xi} = \pm .05$
$\sigma_y = 3.9$

$\sigma_x = 3.3$
$y = .04x$
$x = .03y$

Some attention was given the relationship between the emotion scores and those behavior scores above zero. In the correlation of emotion scores with behavior scores above zero for 159 high school students the only change was found to be the opposite sign. The probable error was of such size as to make the result inconclusive. However, there seems to be some tendency for high emotion scores to at least tend sometimes to have low behavior scores.

This result is very similar to the relation of emotion scores to discipline scores. The fact that the data of behavior is of a different nature from those of discipline would seem to add to the speculations on the problem of sublimation of emotional energy in the reduction of disciplinary acts or trends. These data reveal a tendency for a high emotional score to have a low behavior tendency of an undesirable kind. As previously stated in this study this field would seem to have large possibilities for a more intensive study.

TABLE XXII. CORRELATION OF EMOTION SCORES WITH LEADERSHIP SCORES FOR 194 HIGH SCHOOL STUDENTS

			LEADERSHIP SCORES													
EMOTION SCORES	1 2 3	4 5 6	7 8 9	10 11 12	13 14 15	16 17 18	19 20 21	22 23 24	25 26 27	28 29 30	31 32 33	34 35 36	37 38 39	40 41 42	43 44 45	Totals
42 43							1									1
40 41			1													1
38 39		1	1		1											3
36 37		2		1												3
34 35	1	2			1											4
32 33	1	2	3													6
30 31		2	1	1	1		1		1							7
28 29	4	3	4	2	1											14
26 27	3	10	1	1					1	1						17
24 25	1	11	2	1	2		1	1		1						20
22 23	1	2	6		2	1	1		1					1	1	16
20 21	2	9	4		1	1	1									18
18 19	2	13	4	4	1	1	2									27
16 17	3	6		2	3		1									15
14 15	2	3	1	1	1					1						9
12 13		2	4	1	2	2	1				1					13
10 11		3	2	2					1							8
8 9	1	3	1		1	1										7
6 7		3														3
4 5		1														1
2 3			1													1
Totals	21	78	36	16	17	6	9	1	4	3	1			1	1	194

$r = +.09$
$\sigma_\varepsilon = \pm .05$
$\sigma_y = 7.6$

$\sigma_x = 2.7$
$y = .25x$
$y_x = .03y$

Little relationship was found to exist between leadership and emotion scores. The coefficient of correlation of leadership scores with emotion scores for 194 high school students was +.09±.05. The regression coefficients did not give any significant trends.

The writer was unable to find other studies on the bearing of emotional stability on leadership. There would seem to be an opportunity for further study of this relationship. The students involved in this particular correlation were those in positions of leadership in school activities. This type of leader was the only one considered in this investigation. The correlation of emotional stability and leadership both in and out of school might be worthy of a more extensive analysis. Inspection of the correlation table does seem to suggest that a median emotion score will have a larger leadership rating than one which deviates significantly in either direction.

TABLE XXIII. CORRELATION OF AGE IN MONTHS WITH EMOTION SCORES FOR 525 HIGH SCHOOL STUDENTS.

EMOTION SCORES	AGE IN MONTHS																								
	159 164	165 170	171 176	177 182	183 188	189 194	195 200	201 206	207 212	213 218	219 224	225 230	231 236	237 242	243 248	249 254	255 260	261 266	267 273	274 278	279 284	285 290	To-tal
42 43			1					1															2
40 41	1								1														2
38 39					1	1	1		1	2	2												8
36 37					1		1	1	1			1											5
34 35	1		1		1			3	1	1													8
32 33				2	1	1	4	4	3	3													18
30 31				2	1	1	3	2	2	1	2	2	1	2									19
28 29		1	2	2	2	5	7	2	3	5	1	2	3										35
26 27			2		5	4	5	5	7	4	1	1		1									35
24 25			2	3	3	4	6	8	6	3	1	1	3										42
22 23			2	2	4	3	7	11	8	4	3	3	2	1		2		1		1			54
20 21			2	4	6	8	5	6	7	3	2	1	5			1	1	1					52
18 19	1	1	5	5	7	8	4	7	10	5	4	1	2	1		1							62
16 17	1		1		6	10	5	9	2	1	1	2	2	1									41
14 15		2	1	2	7	6	2	4	5	6	2	2											39
12 13			4	4	6	5	4	3	5	3	1											1	36
10 11			2	2	4	3	3	3	3	3	3		2	1									29
8 9		1			4	2	5	3		3	1			1									20
6 7				1	1	1	2	1	1				1				1						9
4 5					2		2	2															6
2 3						1			1		1												3
Totals	4	5	25	29	62	63	68	75	67	47	25	16	21	8		4	2	2		1		1	525

$r = +.06$
$\sigma_6 = \pm .03$
$\sigma_y = 7.6$

$\alpha = 2.8$
$y = .16x$
$x = .02y$

The relationship between age and emotional stability was found to be negligible. In the correlation of emotion scores with age for 525 high school students the coefficient was +.06 ± .03. A slight tendency of emotional response to increase with age was noted earlier in the study in a review of the data collected on emotional stability. When this was investigated for the entire group the relationship was found to be much smaller than anticipated. The regression of age on emotion was .16 and of emotion on age .02.

Johnson found that emotional stability tended to increase with age. (1) The same tendency was found to be the case in the investigation carried on by Mathews. (2) It would seem also to be true from a casual inspection of the raw scores tabulated earlier in the study.

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1. Johnson. "Emotional Instability in Children." Ungraded. V. 1920.

2. Mathews. "Emotional Stability in Children". Journal of Delinquency. VIII. 1. January, 1923.

TABLE XXIV. CORRELATION OF TERMAN GROUP TEST SCORES WITH SCORES ON THE BEHAVIOR SCALE FOR 203 HIGH SCHOOL STUDENTS.

TERMAN SCORES		BEHAVIOR SCORES																	
		0	1 2	3 4	5 6	7 8	9 10	11 12	13 14	15 16	17 18	19 20	21 22	23 24	25 26	27 28	29 30	31 32	33 34	Totals
190	199					1	1	1	1			1								5
180	189	5	1	3	2		1													12
170	179	12		3		1		1	1	2	1									21
160	169	7	1	2	1	2	1		1	1				1			1			18
150	159	7		4	1	1	1		1											15
140	149	5	1	4	6	2	2		2	1	1	2					1			27
130	139	4	1	2	4	2	1	1	2											17
120	129	9	2	2	1	1	2	1	1			1		1						21
110	119	2	1	1	4	1	1		1	1	1								1	14
100	109	5	1	2	3	3		1	1	1	1		1			1				20
90	99	4	2	3				2			1					1				13
80	89	2		2					1		1									6
70	79		1	1	1	1				1										5
60	69			1		2														3
50	59			3	1															4
40	49												1							1
30	39									1										1
Totals		62	11	33	24	17	10	7	12	8	6	4	2	2		2	2		1	203

$r = -.006$
$\sigma_E = \pm .046$
$\sigma_y = 3.6$
$\sigma_x = 3.7$

The data in this study did not show any relationship between mental ability and behavior scores. The correlation of the scores on the Terman Group Test of Mental Ability with the scores on the behavior scale of undesirable traits was $-.006 \pm .05$.

Other investigations seemed to point toward the same result. Mateer maintained that delinquency was to be found in all the various mental levels.(1) The behavior scale was not intended to mark conduct problems as much as to point out tendencies toward the undesirable traits of behavior in social contact. Adler emphasized the behavioristic tendencies as of more importance than mental process in the analysis of delinquency.(2) At all events according to the data in this investigation there is little relationship between behavior tendencies and mental levels.

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1. Mateer, The Unstable Child. Chapter X.
2. Adler, H. M. "A Psychiatric Contribution to the Study of Delinquency."

TABLE XXV. CORRELATION OF SCHOOL MARKS WITH BEHAVIOR SCORES FOR 233 HIGH SCHOOL STUDENTS.

BEHAVIOR	GRADES					
	1	2	3	4	5	Totals
33 34	1					1
31 32						
29 30		1	1			2
27 28	1	1				2
25 26						
23 24	1			1		2
21 22		2		1		3
19 20			4	1		5
17 18	2	2	1	1		6
15 16	2	5	1	1		9
13 14	2	6	4	2		14
11 12	2	2	5	1		10
9 10	2		8	1		11
7 8	1	9	5	6		21
5 6		5	14	4	2	25
3 4	2	4	15	8	5	34
1 2		2	7	3	2	14
0	1	6	23	33	11	74
Totals	17	45	88	63	20	233

$r = -.37$
$P\varepsilon = \pm .037$
$\sigma_y = 3.7$
$\sigma_x = .98$
$y = 1.3x$
$y_x = .10y$

A substantial relationship was found to exist between school marks and behavior scores. A coefficient of $-.37 \pm .037$ was found for the correlation of the school marks and behavior scores for 233 high school students. This would seem to indicate that as the number of undesirable behavior tendencies increased in the individual there was a tendency for this same individual to make a poor showing in scholastic ranking. The regression of behavior on grades was 1.3 and of grades on behavior .10

The interesting phase of behavior relationships with other factors was manifest in comparing the correlation with both mental ability and school marks. There was no relation between mental ability and behavior scores while these data gave a marked correlation of behavior with grades. There is a possibility that either the teacher is influenced by the undesirable behavior traits or the individual with undesirable behavior traits does not do good school work.

TABLE XXVI. CORRELATION OF DISCIPLINE SCORES WITH BEHAVIOR SCORES FOR 187 HIGH SCHOOL STUDENTS.

DISCIPLINE SCORES	BEHAVIOR SCORES 0	1 2	3 4	5 6	7 8	9 10	11 12	13 14	15 16	17 18	19 20	21 22	23 24	25 26	27 28	29 30	31 32	33 34	Total
96 100											1								1
91 95							1												1
86 90																		1	1
81 85										1									1
76 80												1							1
71 75							1			1		1							3
66 70																2			2
61 65					1										1				2
56 60																			
51 55										1			1						2
46 50								1	1										2
41 45			1		1			1											3
36 40								1	2										3
31 35	2		2		1		1			1		1							8
26 30	1	1	1	1	2														6
21 25					1				1	1	2								5
16 20				1	2		2	2		1									8
11 15	1		2	1	1			2											7
6 10	2		1	2	1	1			1		1								9
1 5			1		1														2
0	44	12	23	13	6	8	5	4	2		1	1			1				120
Totals	50	13	31	18	17	9	10	11	7	6	5	4	1		2	2		1	

$r = +.96$
$P\varepsilon = \pm .0038$
$\sigma_y = 4.4$

$\sigma_x = 3.7$
$y = 1.06x$
$y_x = .82y$

There was practically perfect correlation found between the discipline scores and behavior tendencies. The discipline chart was more a measure of actual conduct not in keeping with school conventions. While the behavior scores represent the undesirable traits in social contact. The correlation of discipline scores with behavior scores for 187 high school students was +.96±.004. The regression coefficients were: discipline equals 1.06 behavior and behavior equals .82 discipline. These data are in keeping with the comments of authorities that behavior traits are indicative of disciplinary conduct.(1)(2) From the regression coefficients there seems to be more of a tendency for discipline to change with behavior than for behavior to change with discipline. It was observed in the description of the construction of these scales that subjectivity was involved in the scoring of students. Yet disregarding the uncertainties of subjective scoring there is an indication of high relationship.

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1. Adler, H. M. Op. cit. 2. Mateer, F. op. cit.

TABLE XXVII. CORRELATION OF LEADERSHIP SCORES WITH BEHAVIOR SCORES OF 109 HIGH SCHOOL STUDENTS.

LEADERSHIP SCORES	BEHAVIOR SCORES 0	1 2	3 4	5 6	7 8	9 10	11 12	13 14	15 16	17 18	19 20	21 22	23 24	25 26	27 28	29 30	Totals
45 46	1																1
43 44																	
41 42																	
39 40	1																1
37 38																	
35 36																	
33 34			1														1
31 32																	
29 30	2		1														3
27 28	1																1
25 26	4		1														5
23 24																	
21 22	2		1	1													4
19 20	1		1					1									3
17 18	1					1											2
15 16	1		1	3	1	1		1		1							9
13 14	3		2		1				1				1				8
11 12	1	2	2		1											1	7
9 10	4			1	1		2	1			1						10
7 8	3	2	1			2	2					1					16
5 6	7	1	2	4				1	1								16
3 4	2	1	1	1	1		2			1	1				1	1	12
1 2	3	1	2			2			1		1						10
Totals	42	7	16	10	5	6	6	4	3	2	3	1	1		1	2	109

$r = -.12$
$\rho\varepsilon = \pm .062$
$\sigma_y = 2.7$

$\sigma_x = 3.7$
$y = .09x$
$\sigma_x = .15y$

There was found some reason to believe that undersirable behavior traits were not in keeping with leadership qualities. The correlation of behavior scores with leadership scores was $-.12 \pm .062$. The scatter was of a curvilinear type, partially due to the large number of zero behavior scores. The regression of leadership on behavior was .09 and of behavior on leadership .15. The negative correlation though low seemed to show that outstanding leadership is probably not in keeping with undesirable behavior tendencies. There was the possibility here of interpreting the data as an argument in favor of the belief that behavior traits interfere with the drive of the personality in effective social adjustment.

TABLE XXVIII. CORRELATION OF BEHAVIOR SCORES WITH AGE FOR 230 HIGH SCHOOL STUDENTS.

AGE IN MONTHS	BEHAVIOR SCORES																			
	0	1 2	3 4	5 6	7 8	9 10	11 12	13 14	15 16	17 18	19 20	21 22	23 24	25 26	27 28	29 30	31 32	33 34	35 36	Totals
285 290	1																			1
279 284																				
273 278											1									1
267 272																				
261 266	2																			2
255 260												1								1
249 254	1	1							1											3
243 248																				
237 242	1			1	1	1			1	1										6
231 236	1		1	2	1		2	1			1		1							10
225 230	4		2	2	2				1									1		12
219 224	5		3	3	2	1	1		1											16
213 218	5	2	7	3	4	3	2	2	2	2		1			2					35
207 212	14	2	7	2		1	2	2			1		1							32
201 206	15	4	3	2	3	1	1	2		2	1					1				35
195 200	8	2	4	4	4	2	2	2	2											30
189 194	8		3	1	1	1		2			1									17
183 188	6		1	4		1		2	1	1						1				17
177 182	1		3	1																5
171 176	1		1	1	1															4
165 170												1								1
158 164	2																			2
Totals	75	11	35	26	19	11	10	13	9	6	5	3	2		2	2		1		230

$r = +.081$
$\sigma_E = \pm .043$
$\sigma_y = 2.8$

$\sigma_x = 3.7$
$y = .09x$
$x = .15y$

No relationship was found to exist between behavior scores and age. The behavior scores correlated with age for 230 high school students +.08 ±.04. There was a possible interpretation here of behavior traits increasing with age because of the positive sign. The regression coefficients did not contribute any significance to the influence of elements involved in this relationship. It would seem that undesirable behavior traits are distributed about evenly over the various ages represented in this investigation. The literature indicated the same trend as disclosed in these data.

TABLE XXIX. CORRELATION OF TERMAN GROUP TEST SCORES WITH DISCIPLINE SCORES FOR 118 HIGH SCHOOL STUDENTS.

TERMAN SCORES		DISCIPLINE SCORES 0	1 5	6 10	11 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 80	81 85	86 90	91 95	96 100	Totals
190	199	2				1																	3
180	189	9							1												1	1	12
170	179	13				2		1		1		1											18
160	169	12	1	1					1				1			1							17
150	159	6	1	1	1	2	1																12
140	149	11	1	1	3		1	2			2	1				1							23
130	139	11		1							1												13
120	129	16		1		2	1			1							1						22
110	119	9								1			1							1			12
100	109	8		2		4		3	1														18
90	99	10			1			1	2						1								15
80	89	3			1															1			5
70	79	3		2				1															6
60	69	1																					1
50	59	3																					3
40	49																	1					1
30	39	1																					1
Totals		118	3	9	6	11	3	8	5	3	3	2	2		1	2	1	1		2	1	1	182

$\mu = -.055$
$\sigma_\mu = \pm .049$
$\sigma_y = 3.6$
$\sigma_x = 4.4$

This study disclosed little relationship between discipline and mental ability. The correlation of discipline scores and Terman Group Test scores was $-.05 \pm .049$ This lack of relationship seemed to indicate no common elements in discipline and intelligence. The regression equation did not give any significant trends.

In the discussion of the literature there was the general opinion that intelligence had little bearing on disciplinary conduct. Johnson found that the connection of mental ability with conduct problems was not as high as supposed.(1) Healy considered mental ability as one of a number of possible explanations of delinquent conduct.(2) Mateer was of the opinion that though mental ability was no indication of delinquency yet low mental levels were often represented among the conduct problem cases.(3)

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1. Johnson, Elinor Hope. "Relation of Conduct Difficulties of a Group of Public School Boys to Their Mental Status and Home Environment."

2. Healy, W. The Individual Delinquent. pp. 53-63.

3. Mateer, The Unstable Child. Chapter 21.

TABLE XXX. CORRELATION OF SCHOOL MARKS WITH DISCIPLINE SCORES FOR 212 HIGH SCHOOL STUDENTS.

DISCIPLINE	GRADES					
	1	2	3	4	5	Totals
96 100			1			1
91 95		1				1
86 90						
81 85	2					2
76 80		1				1
71 75	1	2				3
66 70		1				1
61 65	2		1			3
56 60						
51 55	1	1				2
46 50		1				1
41 45	1	1	1	1		4
36 40	1	2				3
31 35	2	3	2	1		8
26 30		3	4			7
21 25		1	2	1		4
16 20	1	1	9	2		13
11 15	1	1	2	3		7
6 10	2	4	3	2		11
1 5			1	1		2
0	4	21	52	40	21	138
Totals	18	44	78	51	21	212

$r = -.38$
$\sigma_6 = \pm .048$
$\sigma_y = 4.4$
$\sigma_x = .98$
$y = 1.7x$
$x = .08y$

The relationship of discipline and grades was found to be similar to those relationships between behavior and grades. These data disclosed in the correlation of school marks with discipline scores for 212 high school students a coefficient of $-.38 \pm .05$. This seemed to indicate the tendency of discipline problems to have poor grades. The regression equation of discipline on grades was 1.7 and of grades on discipline .08. As in the study of behavior and grades these data for discipline and grades indicated that either conduct problems do poor school work or the teacher takes into account the disciplinary tendencies of the individual when she assigns class grades. Possibly teachers tend not to give high grades to students who have been disciplinary problems.

TABLE XXXI. CORRELATION OF AGE WITH DISCIPLINE SCORES FOR 207 HIGH SCHOOL STUDENTS.

DISCIP-LINE SCORES	AGE IN MONTHS																							
	159 164	165 170	171 176	177 182	183 188	189 194	195 200	201 206	207 212	213 218	219 224	225 230	231 236	237 242	243 248	249 254	255 260	261 266	267 272	273 278	279 284	285 290	To-tal
96 100						1																	1
91 95							1																1
86 90													1										1
81 85														1									1
76 80																	1						1
71 75					1						1	1											3
66 70					1																		1
61 65								1		1		1											3
56 60																							
51 55					1				1														2
46 50								1			1												
41 45								1				2											3
36 40							1			1	1					1							4
31 35		1					2	1		2			1	1									8
26 30						1	1	1	1	2													6
21 25						1				1		1								1			4
16 20						1	1	1	1	2	2		3	1									12
11 15				1	2	1		1	2														7
6 10					1		3	2	1		2	1											10
1 5											2												2
0		1	3	3	10	16	15	21	23	22	7	6	4	1		2						1	135
Totals		2	3	4	16	21	24	30	29	31	16	12	9	4		3	1			1		1	207

$r = +.073$
$PE = \pm .046$
$\sigma_y = 4.4$

$\sigma_x = 2.8$
$y = .11x$
$x = .05y$

The factor of age was found to have little relationship with discipline. A correlation of +.07 ±.046 for age and discipline scores for 207 high school students was of little significance as far as this age factor was concerned. This was found to be true for the age-behavior relationship. The regression of discipline on age was .11 and of age on discipline .05.

TABLE XXXII. CORRELATION OF LEADERSHIP SCORES ON THE TERMAN GROUP TEST OF MENTAL ABILITY FOR 143 HIGH SCHOOL STUDENTS.

TERMAN		LEADERSHIP									
		0 5	6 10	11 15	16 20	21 25	26 30	31 35	36 40	41 45	Totals
190	199	1		2							3
180	189	2	5	2			1				10
170	179	4	5	1	1	2	2		1		16
160	169	6	2	2			1	1			12
150	159	7	1	2	2	1	1				14
140	149	7	5	2	1	1					16
130	139	8	3	1	2	1					15
120	129	5	4	3	1	1				1	15
110	119	4	1	1	1						7
100	109	6	1	3	1		1				12
90	99	6	3	2		1					12
80	89	3		1			1				5
70	79	1		1							2
60	69	2			1						3
50	59										
40	49										
30	39			1							1
Totals		62	30	24	10	7	7	1	1	1	143

$r = +.266$
$\sigma_E = \pm .052$
$\sigma_y = 3.6$
$\sigma_x = 2.7$
$y = .32x$
$x = .20y$

Mental ability and leadership in this investigation had some relationship. A correlation of Terman Group Test Scores with leadership scores for 143 high school students gave a positive +.27±.05. This seemed to show that a common element might be operating in both types of data. The regression of mental ability on leadership was .32 and of leadership on mental ability positive .20. The curvilinear nature of the scatter would to a certain extent discount the weight of the correlation.(1) However, there was sufficient correlation to indicate some relationship between leadership and intelligence.

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1. Kelley, T. L. Statistical Method. pp. 151,172.

TABLE XXXIII. CORRELATION OF SCHOOL MARKS WITH LEADERSHIP SCORES FOR 195 HIGH SCHOOL STUDENTS.

LEADERSHIP	GRADES					
	1	2	3	4	5	Totals
41 45				1		1
36 40				1		1
31 35				1		1
26 30		1	2	3	1	7
21 25			2	2	4	8
16 20		1	4	7	1	13
11 15	1	4	11	10	4	30
6 10		3	16	23	3	45
0 5		17	35	29	8	89
Totals	1	26	70	77	21	195

$r = +.105$
$\sigma_E = \pm .047$
$\sigma_y = 2.7$
$\sigma_x = .98$
$y = .27x$
$x = .04y$

There was a slight correlation found to exist between grades and leadership. The data gave a coefficient of $+.11 \pm .05$, for a group of 195 high school students. The regression of leadership on grades was .27 and of grades on leadership .04. Though there is a low positive correlation in these data yet there is an amount sufficient to indicate that common elements do probably exist.

TABLE XXXIV. CORRELATION OF LEADERSHIP SCORES WITH AGE FOR 195 HIGH SCHOOL STUDENTS.

LEADERSHIP SCORES

AGE	1 2 3	4 5 6	7 8 9	10 11 12	13 14 15	16 17 18	19 20 21	22 23 24	25 26 27	28 29 30	31 32 33	34 35 36	37 38 39	40 41 42	43 44 45	Totals
285-290				1												1
279-284																
273-278																
267-272																
261-266																
255-260						1										1
249-254						1										1
243-248																
237-242		1		1	1											3
231-236		5					1									6
225-230		2			2											4
219-224	1	5	2		1				2							11
213-218	5	3	2	1		1	2		1	2				1		18
207-212	4	5	8	2	5	1	1			1					1	28
201-206	2	12	2	3	3	1	2	1	1							27
195-200	3	9	6	1	2		1				1					23
189-194	1	10	6	4		1	2									24
183-188	2	8	2	3		1	1		1							18
177-182		8	3		1											12
171-176	1	7	3	1	1											13
165-170		2	1													3
158-164	2															2
Totals	21	77	35	17	16	7	10	1	5	3	1			1	1	195

$r = +.206$
$\sigma_r = \pm .046$

$\sigma_y = 2.8$
$\sigma_x = 2.7$

The correlation of age with leadership is in a measure disqualified by the nature of the leadership scale. It was to be expected that this correlation would exist for the student could not gain positions of leadership until after some time in school career. The positive correlation of .21 might be misleading if it were not for this criticism of the quality of data upon which the correlation was based.

TABLE XXXV. CORRELATION OF SCHOOL MARKS WITH TERMAN GROUP TEST SCORES FOR 345 HIGH SCHOOL STUDENTS.

TERMAN	GRADES					
	1	2	3	4	5	Totals
190 199	1		3	2		6
180 189		2	4	7	3	16
170 179		2	6	12	4	24
160 169	1	4	8	9	2	24
150 159		3	11	9	1	24
140 149	1	7	16	15	4	43
130 139		9	13	8	1	31
120 129		7	22	8	1	38
110 119	1	8	11	10		30
100 109		7	15	9		31
90 99	2	14	12	4		32
80 89		5	8	1		14
70 79		7	7	2		16
60 69		5	2			7
50 59	1	3	3			7
40 49			1			1
30 39		1				1
Totals	7	84	142	96	16	345

$r = +.56$

$P\varepsilon = \pm .02$

$\sigma_y = 3.6$

$\sigma_x = .98$

$y = 2.02x$

$x = .15y$

There was found to exist a marked relationship between school marks and mental ability. In the correlation of school marks with the Terman Group Test scores the coefficient was positive+.56 ±.024. This amount may be considered to mean that there was much in common in the two series of data. The regression of mental ability on school marks was 2.02 and of school marks on mental ability .15.

TABLE XXXVI. CORRELATION OF AGE WITH TERMAN GROUP TEST SCORES FOR 429 HIGH SCHOOL STUDENTS.

TERMAN SCORES	AGE IN MONTHS																							
	158 164	165 170	171 176	177 182	183 188	189 194	195 200	201 206	207 212	213 218	219 224	225 230	231 236	237 242	243 248	249 254	255 260	261 266	267 272	273 278	279 284	285 290	Total
190 199						1	2	1					1										5
180 189	1				2		2	2	7	1													15
170 179			2	1	1	2		6	3	6	2												23
160 169	1		1	2	4	4	4	2	4	2	4												28
150 159			2	2	4	5	4		4	1	1												23
140 149			3		6	9	6	10	4	5	2	1	2							1			49
130 139			3	2	4	3	5	8	5	3	2					2							37
120 129			2	4	6	6	10	8	7	2	3	1	3									1	55
110 119		1	1	2	5	4	6	3	6	1	1	3	7			1							41
100 109			2	2	7	1	8	7	4	4	3	1	1	3									43
90 99			2	3	3	3	3	3	6	4	1	1	2			1	1						33
80 89			1	5	3	4	3	2	1		2	1	1	1									24
70 79					4	8	3	2	2		3	1	1	1									25
60 69				3	2		1	3	2	3													14
50 59						3	1	2	2	2	1	1											12
40 49							1	2	1								1						5
30 39					1	1								1									3
20 29						1	2																3
Totals	2	1	19	26	52	55	61	61	58	34	27	10	18	6		4	2			1		1	

$r = -.0325$
$P_E = \pm .032$
$\sigma_y = 3.6$
$\sigma_{\bar{x}} = 2.8$

TABLE XXXVII. CORRELATION OF AGE WITH SCHOOL MARKS FOR 511 HIGH SCHOOL STUDENTS.

AGE	GRADES					
	1	2	3	4	5	Totals
285-290			1			1
279-284			1			1
273-278						
267-272						
261-266		1	1	2		4
255-260		1	1		1	3
249-254		3				3
243-248						
237-242	2	4	2			8
231-236	4	8	10	1		23
225-230	5	2	5	2		14
219-224		7	8	8		23
213-218	2	17	19	7	1	46
207-212	5	8	28	18	5	64
201-206	3	16	24	19	7	69
195-200	5	18	32	13	2	70
189-194	1	14	28	13	1	67
183-188	4	9	23	20	7	63
177-182		1	14	15	3	33
171-176		5	6	9	2	22
165-170			1	4		5
158-164					2	2
Totals	31	114	204	131	31	511

$r = -.221$

$\sigma_\xi = \pm .028$

$\sigma_y = 2.8$

$\sigma_x = .98$

$y = .61x$

$x = .07y$

For these students the data disclosed no relationship between age and mental ability. In a computation involving the data of 429 students the coefficient of correlation was $-.03 \pm .03$. The regression coefficients were of no significance in the interpretation of trends between the two types of data.

Age and school marks were found to have some negative correlation. For 511 high school students the correlation of school marks with age gave a coefficient of $-.22 \pm .03$. This inverse correlation indicated that the younger students tended to make better marks in school, a fact which has been brought out repeatedly in earlier studies.

CHAPTER V. THE INTERPRETATION OF FINDINGS. CONTINUED.

B. PARTIAL RELATIONSHIPS

It was one of the objects of this investigation to study the influence of age, leadership, behavior, discipline, and emotion on the correlation of mental ability with school marks. It was considered possible to find some explanation of the lack of a high correlation between mental ability and school marks.

The method used in this particular part of the study was partial correlation. (1) These various factors were each in turn held constant when correlation of mental ability and school marks was computed. The difference, if there proved to be a difference, between the simple correlation and partial correlation would be considered as of value in the explanation of the lack of a high correlation between intelligence and scholarship.

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1. $r_{12.3} = \dfrac{r_{12} - (r_{13} \times r_{23})}{\sqrt{(1-r_{13}^2)(1-r_{23}^2)}}$

From Otis, A.S. Statistical Methods in Educational Measurement. World Book Company. 1925. p. 232.

TABLE XXXVIII. COEFFICIENTS OF CORRELATION AND PROBABLE ERRORS FOR THIS INVESTIGATION

	Terman Group Test	Discipline	Behavior	School Marks	Emotion	Leadership	Age
Terman Group Test		.06 .05	.01 .05	.56 .02	.02 .03	.27 .05	.03 .03
Discipline	.06 .05		.96 .004	.38 .05	.13 .04	*	.07 .05
Behavior	.01 .05	.96 .004		.37 .04	.04 .04	.12 .06	.08 .04
School Marks	.56 .02	.38 .05	.37 .04		.02 .03	.11 .05	.22 .03
Emotion	.02 .03	.13 .04	.04 .04	.02 .03		.09 .05	.06 .03
Leadership	.27 .05	*	.12 .06	.11 .05	.09 .05		.21 .05
Age	.03 .03	.07 .05	.08 .04	.22 .03	.06 .03	.21 .05	

* An insufficient number of cases made a correlation of leadership with discipline impossible.

TABLE XXXIX. COEFFICIENTS OF PARTIAL CORRELATION COMPUTED IN THIS INVESTIGATION.

Terman	Group	Test	and	School	Marks	without	Behavior	.60
"	"	"	"	"	"	"	Emotion	.56
"	"	"	"	"	"	"	Age	.57
"	"	"	"	"	"	"	Leadership	.56
"	"	"	"	"	"	"	Discipline	.58

The simple correlation of mental ability with school marks was $+.56 \pm .02$.

Behavior seemed to have the most influence on the correlation of mental ability with school marks in this investigation. The partial correlation coefficient of .60 was an increase over the simple correlation of .56. There seemed to be some justification here to the claim that teachers were affected by undesirable behavior traits in the marking of students. This amount of difference found is not great but it is significant and in a measure denotes an influence which merits attention.

Disciplinary tendencies seemed to have the second most important influence according to these data.

The coefficient of partial correlation in this computation amounted to .58. This appeared to indicate that disciplinary trouble entered into the marking of students. Though this amount of change of correlation is not as great as that of behavior yet it is significant. It may either mean that without this the bright studnet did better work or it was noted by the teacher in marking the grade because of the conduct troubles. In view of the fact that the average high school teacher is not awaŕe of conduct problems it would seem that these data indicated that disciplinary tendencies prevent the student doing the work he might do.

These data also disclosed the fact that age has some influence on the correlation between mental ability and school marks. Without the factor of age operating the simple correlation was increased from .56 to .57. This change is small yet denoted the possibility of this being one of the factors that explained the lack of high correlation between intelligence and scholarship. It is commonly agreed by students of the problem of age-grade displacement that teachers tend to over-rate the performance of the older student, and

to under-rate that of the younger student in their classes.

Leadership and emotion did not change the simple correlation of mental ability with school grades.

Behavior trends, age, and discipline seem to affect in some slight degree the relationship between mental ability and the teachers' ratings of school work.

CHAPTER V. THE INTERPRETATION OF FINDINGS. CONCLUDED.

C. MULTIPLE RELATIONSHIPS.

When the student enters school it would be possible to gather the data on mental ability, age, and emotional balance. With this data it might be of use to the school administrator if he could predict school success and social adjustment. A part of this study was the bearing of these factors in the combination of behavior, discipline, leadership, or school marks.

The method of multiple correlation was employed in this part of the study.[1] Taking any one of these factors or traits as a criterion, the problem was to find the correlation of a combination of any two of the factors of age, mental ability, or emotional stability with this criterion.

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1. $R_{c.12} = \sqrt{\frac{r_{c1}^2 + r_{c2}^2 - 2 r_{c1} r_{c2} r_{12}}{1 - r_{12}^2}}$

From Otis, A.S. Statistical Method in Educational Measurement. p. 239

TABLE XL. COEFFICIENTS OF MULTIPLE CORRELATION FOUND IN THE STUDY OF COMBINATIONS OF AGE, MENTAL ABILITY, AND EMOTION AS PREDICTIVE FACTORS FOR BEHAVIOR, LEADERSHIP, DISCIPLINE, AND SCHOOL MARKS.

	SCHOOL MARKS	BEHAVIOR	LEADERSHIP
MENTAL ABILITY AND EMOTION	.57	.04	.28
MENTAL ABILITY AND AGE	.59	.08	.34
EMOTION AND AGE.	.22	.09	.22

A combination of mental ability with age seemed to have the most predictive value in a study of these data. The coefficient of multiple correlation for mental ability and age with school marks as a criterion was positive .59. Age contributed some to the correlation of mental ability with school marks which was found to be positive .56.

The combination of emotion and mental ability had some effect on the simple correlation of mental

ability with school marks. The multiple correlation in this study gave a coefficient of positive .57. This was a gain of only .01, which is not large but sufficient to indicate a measure of influence.

Emotion and age combined as a factor in multiple correlation with school marks indicated no value as a predicting factor. The coefficient of multiple correlation was .22. There was no change over the simple correlation of age with school marks.

No combination of age, mental ability or emotion indicated significance in predicting behavior of the undesirable kind. What little was found to exist in these studies the computation of multiple correlation of age and emotion with behavior as constant was the largest. The amount found was so small as to be negligible.

The combination of age and mental ability without leadership as a criterion gave the largest degree of relationship in the study of leadership. The coefficient in this instance was .34. This was a marked change over either the simple correlation of age or mental ability with leadership. The combination of mental

ability and emotion was next in importance with a coefficient of .28. Age and emotion in combination also indicated little change over the simple correlation of age with leadership.

CHAPTER VI. SUMMARY OF FINDINGS

The study of data obtained in this investigation of character traits of students in the high school at Lawrence, Kansas, reveals the following facts:

EMOTIONAL STABILITY

1. Girls had a slightly higher mean score than boys on the emotion scale.
2. The variability of emotional response was higher for girls than boys though the amount was very small.
3. The youngest boys had the highest mean score of all boys on the emotion scale.
4. After 15 years the mean score on the emotion scale for boys increased slightly each year over the age range included in this study.
5. For 15, 16, 17 years the mean score for girls on the emotion scale increased slightly.

BEHAVIOR TRENDS

1. Boys had a higher mean score than girls on the behavior scale.

DISCIPLINARY TRENDS.

1. Boys had a higher mean score on the discipline than girls.

INTER-RELATIONSHIPS

1. No correlation was found to exist between emotion scores and scores on the Terman Group Test.
2. No correlation was found to exist between emotion scores and school marks.
3. A positive low correlation was found to exist between the emotion scores and discipline scores.
4. The correlation between emotion scores and behavior scores was negligible though positive.
5. A low correlation was found for emotion scores and leadership scores.
6. There was no relationship found to exist between mental ability and behavior.
7. A substantial negative relationship was found

for behavior and school marks. In this $r = -.37 \pm .04$.

8. There was almost perfect positive correlation between behavior and discipline ratings.

9. The relationship of leadership with behavior was found to be negative and low.

10. For the ages covered in this study there was found no relationship between age and behavior.

11. The correlation of mental ability and discipline was negligible though negative.

12. There was found a substantial negative relationship between school marks and discipline. $r = -.38 \pm .05$.

13. For the ages covered in this study there was found no relationship between age and discipline.

14. There was found slight correlation of leadership with mental ability. $r = +.27 \pm .05$.

15. The relationship between leadership and school marks was low though significant.

PARTIAL RELATIONSHIPS.

1. Undesirable behavior traits had a marked influence on the correlation of mental ability with school grades.

2. Disciplinary tendencies had a marked influence on the correlation of mental ability and scholarship.

MULTIPLE RELATIONSHIPS.

1. The combination of age and mental ability factors was found to be of some value in the prediction of school marks.

2. The combination of emotion and mental ability was found to have some predictive value in predicting school marks.

3. The combination of age and mental ability was of some value in predicting leadership.

4. The combination of mental ability and emotion was found to be of slight value in predicting leadership.

APPENDIX

INSERTS:

A. The Emotion Scale

B. The Behavior Scale

C. The Student Activity Form

D. Leadership Values For Student Activity Positions

E. The Disciplinary Chart

F. Scoring Key For Disciplinary Chart

Student's Scale

Name.....

(Underscore yes or no as you find the question answered in your own experience)

1	Do you like to be by yourself better than with others?	yes	no
2	Do others let you be with them?	yes	no
3	Did you ever run away from home?	yes	no
4	Did you ever want to run away from home?	yes	no
5	Do people find fault with you much?	yes	no
6	Do you think people like others better than they like you?	yes	no
7	Do you ever feel that people are staring at you?	yes	no
8	Does it make you uneasy to cross a bridge over water?	yes	no
9	Do you mind going into a tunnel?	yes	no
10	Are you afraid of water?	yes	no
11	Are you afraid during a thunder-storm?	yes	no
12	Do you feel like jumping off when you are on a high place	yes	no
13	Have you ever been home sick?	yes	no
14	Were you ever afraid of the dark?	yes	no
15	Are you often frightened in the middle of the night?	yes	no
16	Are you afraid of noises in the night?	yes	no
17	Do you ever cry out in your sleep?	yes	no
18	Do you ever talk in your sleep?	yes	no
19	Do you ever walk in your sleep?	yes	no
20	Are you troubled with dreams about your play?	yes	no
21	Do you ever dream of being chased?	yes	no
22	Do you dream of robbers?	yes	no
23	Do you ever have the same dreams over and over?	yes	no
24	Do you ever cry yourself to sleep?	yes	no
25	Did you ever have the habit of stuttering?	yes	no
26	Can you sit still without fidgeting?	yes	no
27	Did you ever have the habit of twitching your head, neck, or shoulders?	yes	no
28	Do you break, tear, and spoil things more than other people?	yes	no
29	Do you stumble and fall over things more than others?	yes	no
30	Is there any one kind of food that makes you sick?	yes	no
31	Is there any kind of food that disgusts you so that you cannot eat it?	yes	no
32	Do you ever feel as though the world was against you?	yes	no
33	Do you ever wish you had never been born?	yes	no
34	Do you ever get so sulky that you will not answer people?	yes	no
35	Are your feelings often hurt that you cry?	yes	no
36	Do you giggle over nothing at all?	yes	no
37	Is it easy to get cross over very small things?	yes	no
38	Did you ever have a real fight?	yes	no
39	Do you like to tease a person till they cry?	yes	no
40	Do you ever feel a certain pleasure in hurting a person or an animal?	yes	no
41	Did you ever have a nickname that you did not like very well?	yes	no
42	Do you sometimes feel that noboby quite understands you?	yes	no
43	Do you seem to have a harder time to get along in school than others?	yes	no
44	Do you ever make believe that things you wish for are true?	yes	no
45	Is it hard for you to get people to work with you?	yes	no
46	Do suggestions irritate you?	yes	no
47	Does criticism sting you?	yes	no
48	Do you find it difficult to listen to what others say?	yes	no
49	Is it easy for you to see the faults of others?	yes	no
50	Is it easy for you to criticize others?	yes	no
51	Do you find it hard to drive yourself to do disagreeable tasks?	yes	no
52	Is it difficult for you to own up to your own mistakes?	yes	no
53	Are you easily discouraged?	yes	no
54	Are you suspicious of people?	yes	no
55	Do you like to be held responsible for a project?	yes	no
56	Does authority stir you up?	yes	no
57	Do you insist on having all your priviliges?	yes	no
58	Do distractions confuse you?	yes	no
59	Do you have a great fear of fire?	yes	no
60	Is it difficult for you to make friends?	yes	no
61	Have you any strong superstitions?	yes	no
62	Do you have a hard time making up your mind about things?	yes	no
63	Do you ever feel that someone is trying to do you harm?	yes	no
64	Do you often feel you are not treated right?	yes	no
65	Do you feel sort of tired a good deal of the time?	yes	no
66	Do you find home a hard place to get along in?	yes	no

B. THE BEHAVIOR SCALE

TEACHER'S SCALE

Name of student .....

(Make a check mark before the traits present in the student)

Boisterous	Domineering
Ill-natured	Talkative
Deceitful	Intolerant
Sly	Rebellious
Untruthful	No spontaneous interest
Depressed	Irresponsible
Pessimistic	Not orderly
Unhappy	Unwilling to be helped
Impatient	Superficial
Irritable	Careless
Quick-tempered	Sluggish
Sullen	Boastful
Sulky	Overconfident
Odd	Trouble maker
Eccentric	Stubborn
Peculiar	Suspicious
Disrespectful	Sympathy seeker
Easily discouraged	Blames circumstances for own fault
Disregards promises	Capitalizes physical feelings
Exaggerates	Distant
Prejudiced	Unfriendly
Antagonistic	Self centered
Defiant	Solitary
Egoistic	Jumps at conclusions
Insolent	Timid
Spiteful	Avoids responsibility
Fidgety	Works sporadically
Easily elated	Habitually violates disciplinary regulations
Inattentive	Negativistic
Silly	Anarchistic
Day dreamer	Unfriendly toward those who cooperate with authority
Flighty	
Seclusive	Insists on special favors and privileges
Indecisive	Fickle
Slow reaction	Seldom anticipates
Notices distractions	Scatter-brained
Easily confused	Moody

STUDENT ACTIVITY SCALE

Name_____ Score_____

Underscore your class: senior junior sophomore

Write the day, month, and year of your birth_____

Read carefully and follow directions

Check any of the following activities you have participated in since Sept. 1924. Be sure you check every one you have been in. Then add the total number in which you have participated and write the score in the blank space following your name.

1. President of boys or girls student council
2. President of Y.W.C.A. or Hi Y
3. Editor of Red and Black
4. Editor of Budget
5. President of Junior or Senior Class
6. Captain of football team
7. Business manager of Red and Black
8. Business manager Budget
9. Cheerleader
10. Junior prom manager
11. Captain basketball team
12. Part in Dramatic Club or senior play
13. Member of debate team in inter-school contest
14. Constitution oratorical contest
15. Officer in a departmental club: Debate club, Glee clubs, French, G.A.A., Ben Franklin, Ag, Band, Normal Training, O.B.A., Dramatic Club, Orchestra, Promoters, Lolan, Classical, Oita, Home Economics, L Club.
16. Captain track team.
17. President sophomore class.
18. Part in operetta
19. Officer in Pepperettes
20. Chairman of a Y.W.C.A. or Hi y committee
21. Soloist in school program
22. Officer in Y.W.C.A. or Hi Y (not president)
23. Secretary or treasurer Junior or Senior class
24. Member Budget staff
25. Vice president Junior or senior class
26. Member football team

27. Member basketball team
28. Secretary or treasurer sophomore class
29. Member of Red and Black staff
30. Member of boys or girls glee club
31. Member of band or orchestra
32. Member of track team
33. Vice president of sophomore class
34. Member of a club committee as listed in number 15.
35. Member in pepperette
36. Member of boys' pep club
37. Member L club
38. Member junior prom committee
39. Captain track team.
40. Member interschool ag team contest.
41. Member of any club listed in number 15.

In numbers 15, 34, and 41 count each club in which you may be an officer, committee chairman or member as one point each.

D. LEADERSHIP VALUES FOR STUDENT ACTIVITY POSITIONS

SCALE OF VALUES FOR POSITIONS IN SCHOOL ACTIVITIES

10 points President of boys or girls student council

9 points President of Y. W. C. A. or Hi Y
Editor Red and Black
Editor Budget
President of Junior or Senior Class

8 points Captain Football
Business Manager Red and Black
Business Manager Budget

7 points Cheerleader
Captain Basketball
Part in school play

6 points Member of inter school debate team

5 points President Sophomore class
Part in Operetta
Chairman committee of Y.W.C.A. or Hi Y
Member boys or girls student council

4 points Officer in Y.W.C.A. or Hi Y
Department club officer
Secretary or treasurer of Junior or Senior class

3 points Member of Budget staff

Vice President Junior or Senior class

2 points Secretary or treasurer of Sophomore class

Member Red and Black staff

1 point Vice president Sophomore class

Member department club committee.

E. THE DISCIPLINARY CHART

Name_____

Stealing	1	2	3	4
Cheating	1	2	3	4
Lying	1	2	3	4
Imaginative Lying	1	2	3	4
Truancy	1	2	3	4
Unnecessary Tardiness	1	2	3	4
Defiance to Discipline	1	2	3	4
Unpopular with children	1	2	3	4
Bullying	1	2	3	4
Marked over-activity	1	2	3	4
Speech difficulties	1	2	3	4
Temper outbursts	1	2	3	4
Disinterest in school work	1	2	3	4

1. "Has not been called to our attention."

2. "Has occured once or twice."

3. "Occasional occurance."

4. "Frequent occurance."

F. SCORING KEY FOR THE DISCIPLINARY CHART

SCORING KEY FOR BEHAVIOR PROBLEMS

The values assigned are the result of a combined weighting for the seriousness of the problem as an index of unsocial behavior and for the frequency of manifestation of the problem. The weighting was carried on by Mr. Olsen under the direction of Dean M. E. Haggerty of the University of Minnesota.

	1	2	3	4
Stealing	0	12	18	21
Cheating	0	4	6	7
Lying	0	4	6	7
Imaginative Lying	0	8	12	14
Truancy	0	12	18	21
Unnecessary tardiness	0	4	6	7
Defiance to Discipline	0	4	6	7
Unpopular with Children	0	8	12	14
Bullying	0	8	12	14
Marked overactivity	0	4	6	7
Speech Difficulties	0	8	12	14
Temper Outbursts	0	8	12	14
Disinterest in school work.	0	4	6	7

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